

THE WASA AND SCOPE CREEP – BASED ON A TRUE STORY

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Four hundred years ago, the king of Sweden, Gustav II, was at war with Poland. The war had been raging since 1618, and the king's plans required a strong presence in the Baltic Sea.

Most of the ships in the Swedish navy were small patrol vessels with few guns. The King urgently needed to strengthen his fleet, so he decided to build larger heavily-armed ships. To lead this project, he hired master ship-builder Henrik Hybertsson, tasking him to build a gunship 108 feet long with 32 cannons on the gundeck. Master Henrik had built several ships with those specifications, so he accepted the commission, and estimated that the ship would be ready for war within two years.

However, something seemed wrong. Despite the urgency of the project, the King kept requesting design changes. Eventually, after several twists and turns, the King approved the final design of the ship, which was to be called the Wasa, and he donated the raw material to begin construction: a forest of 1,000 oaks.

A few months later, tragedy struck! The Swedish navy lost ten ships during a heavy storm, so the King called Master Henrik with a new instruction: *Accelerate the project to finish sooner, and don't worry about the budget.*

Henrik adjusted the plan and resources to accelerate the project, but a few months later another message arrived from the King: *Dear Henrik, I've been thinking. In addition to speeding up the project, you must make the ship bigger, at least 120 feet long, so it can carry more military cargo.*

This made things complicated for Henrik, because he had no previous experience of building bigger ships, and at that time, there were no mathematical simulators to automatically enlarge the design. He'd also already cut up all the timber to the original size! Henrik convinced the King that if he wanted to meet the accelerated end date, the maximum size would have to be just 111 feet. Even though the King was not very satisfied, he approved the new project scope.

Henrik and his team were happy because they finished the 111-foot keel in record time. However, his beloved King appeared with another new requirement: *In Denmark they are building a larger ship and it has a double row of guns, so I want ours to be like that.*

Henrik was desperate, the King was asking for something that seemed to be against the laws of physics, and he had no materials, no blueprints, no

specifications, no experience in building such vessels, and no time. Henrik told the King that in order to enlarge the *Wasa*, they would have to use wood that was reserved for another ship. The King approved the change, and Henrik agreed to enlarge the ship to 135 feet. But it would probably have been simpler to cut down a new forest instead of stealing resources from another project.

The construction team had grown considerably, and by this time more than 400 people were working on the biggest project in the history of Sweden. When they had made good progress with the expansion of the *Wasa* to 135 feet, the King had another word with Henrik: *One more thing I forgot to mention ... Instead of 32 cannons in one row, we need to fit 36 cannons in 2 rows, plus another 12 small cannons, 48 mortars, and 10 other smaller caliber weapons.*

Henrik was really stressed with all of these changes on the fly when they had no time. But he understood that his King must always be obeyed. Fortunately, the budget was not a limitation, so Henrik re-planned to accommodate all the new requirements.

After several months of work, and close to the deadline, the project had made really good progress. However, the King interfered again: *Henrik, I am very pleased with progress, but instead of 36 large and 12 small cannons, we need to have 64 big cannons so we can use the same ammunition for all the guns.*

The King did not understand that having 64 big cannons would add so much weight that the *Wasa* would become unstable. Unfortunately Henrik was not able to tell the King about this, because he died of a heart attack when he heard the new requirement.

Fortunately, Henrik had a skilled assistant, Hein Jacobsson, who took over the project determined to please his beloved King Gustav.

Hein moved forward with the project, including the new requirements to include 64 big cannons. Costs were skyrocketing and the King continued to push for an accelerated end date.

The project was almost ready, when the King sent for Hein: *I've been looking at the ships the Danish are building. Our ship has to look better than theirs, so I want you to add some decorative sculptures – about 700 should do it. That'll show those Danes!*

During all his years building ships, Hein had learned two things: a King must always be pleased, and size matters!

The short time remaining to the end of the project was spent adding decorative sculptures that had no connection with the military equipment; rather than

investing that precious time in structural testing of the stability of the ship – remember all that extra weight from the cannons?

Hein insisted that the Wasa could not sail without completing a stability test. There wasn't time for a full test, so they told thirty marines to run from one end of the ship to the other. Even with this simple test, it became clear immediately that the ship was not really stable. But the King couldn't wait any longer and threatened that someone could get hurt if they didn't finish everything right now. So no-one tried to improve stability, but then, Hein didn't know how to do it anyway.

Finally, after two and a half years of construction, the big day arrived. The most modern, sumptuous and largest ship in the Swedish navy was ready to sail. On 10th August 1628, amidst great celebrations, fireworks and in the presence of several foreign diplomats, the Wasa left the port of Stockholm with 150 passengers under Captain Söfring Hansson.

As the ship sailed away, the gun-ports were open and the guns were pointing out so that they could fire a salute to the dignitaries on shore. Suddenly a gust of wind swelled the sails and tilted the ship to one side, so the first row of cannons hit the water, which began to enter through the open gun-ports. The crew tried desperately to save the ship but they could not stop the catastrophe. Water rushed into the gundeck and down to the hold, and in just 15 minutes the Wasa had sunk completely, killing 53 crew only 120 meters from shore.

The most expensive ship in Swedish history had only sailed 1,300 meters.

Who was to blame? Obviously it must be the captain. The next day Captain Hansson was arrested and an inquest was called. Fortunately, justice was done and the official verdict of the inquest on the reason for the sinking of the Wasa was “only God knows”. Of course Master Henrik could have told them the real reasons – but he was dead and buried.

So what can we learn from the tragic story of the Wasa? The pressure of a tight deadline, combined with constant requirement changes, lack of technical specifications, and the need for innovation – these things can kill any project.

Even if your project has a powerful sponsor who insists on changing the scope, be very careful about gold-plating your requirements. Scope creep can be fatal!

Video: www.pablolledo.com/videos